

REMARKS

The present Amendment amends claims 1-19, and no claims are canceled. Therefore, the present application has pending claims 1-19.

35 U.S.C. §103 Rejections

Claims 1-19 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U. S. Patent Application Publication No. 2003/0225735 to Weber in view of U. S. Patent Application Publication No. 2001/0005894 to Fukui. This rejection is traversed for the following reasons. Applicants submit that the features of the present invention, as now more clearly recited in claims 1-19, are not taught or suggested by Weber or Fukui, whether taken individually or in combination with each other in the manner suggested by the Examiner. Therefore, Applicants respectfully request the Examiner to reconsider and withdraw this rejection.

Amendments were made to the claims to more clearly describe features of the present invention. Specifically, amendments were made to the claims to more clearly recite that the present invention is directed to a storage device system and a method of activating a storage device system as recited, for example, in independent claims 1 and 15.

The present invention, as recited in claim 1, and as similarly recited in claim 15, provides a storage device system. The storage device system includes a plurality of storage devices in which information is stored, a storage device control section for controlling storage of information in the plurality of storage devices, and a connection unit connected to the storage device control section. The storage device system also includes a first processor that is connected to an external local area network (LAN), which is external to

the storage device system, and that converts data of a file access form received over the external LAN into data of a block access form. Also included in the storage device system is a second processor that is connected to the storage device control section via the connection unit, that accesses the plurality of storage devices via the connection unit and the storage device control section in response to data of the block access form issued from the first processor, and that controls activation of the first processor including resetting the first processor by the second processor. The storage device system further includes a management terminal that is connected to the first processor and the second processor via an internal LAN.

According to the present invention, the resetting the first processor by the second processor includes stopping supplying power to the first processor, re-supplying power to the first processor and activating a Basic Input/Output System (BIOS) of the first processor.

Also according to the present invention, the first processor stores respective media access control (MAC) addresses, which are assigned to ports of the internal LAN, in respective communication memories.

Furthermore, according to the present invention, the management terminal acquires the MAC addresses assigned to the first processor from the second processor at regular intervals, until the power supply of the management terminal is turned on again.

Further, according to the present invention, the second processor verifies whether disk drives have spun disks so as to determine whether the storage devices are usable, and detects whether the disk drives have completed spinning the disks.

Even further, according to the present invention, the first processor issues a network boot request to a network boot server implemented in the management terminal.

Yet even further, according to the present invention, the management terminal receives the network boot request over the internal LAN, and the first processor allows the second processor to start disk booting. The prior art does not teach or suggest all of the above-described features.

The above described features of the present invention, as now more clearly recited in the claims, are not taught or suggested by any of the references of record. Specifically, the features are not taught or suggested by either Weber or Fukui, whether taken individually or in combination with each other.

Weber teaches an apparatus and method for providing transparent sharing of channel resources by multiple host machines using mixed mode block and file protocols. However, there is no teaching or suggestion in Weber of the storage device system or the method of activating a storage device system as recited in claims 1 and 15 of the present invention.

Weber discloses a method and system for providing transparent mixed mode, object, and block data storage transport. The system implements I/O modules capable of translating between communication protocols for providing common message passing multi-channel data transport for data storage while providing apparent I/O circuit exclusivity to controllers. The system is capable of converting object based transports for block storage, thus permitting both block and object based access to the storage complex. Implementing the system of the present invention allows for a common data

transport system permitting component scalability and virtualization while allowing for target and initiator mode utilization of I/O interface circuits.

One feature of the present invention, as recited in claim 1, and as similarly recited in claim 15, includes a first processor that is connected to an external local area network (LAN), which is external to the storage device system, and that converts data of a file access form received over the external LAN into data of a block access form. Weber does not disclose this feature.

As described in paragraph [0027], and as shown in Fig. 1, the object converting elements 142, such as network attached head-end servers (NAS engines) are included in the storage complex system 100. The object converting elements 142 are coupled to the switch 120. There is no teaching or suggestion in LAN of where the object converting elements 142 are connected to an external LAN, which is external to the storage device system, as in the present invention.

Another feature of the present invention, as recited in claim 1, and as similarly recited in claim 15, includes a second processor that is connected to the storage device control section via the connection unit, that accesses the plurality of storage devices via the connection unit and the storage device control section in response to data of the block access form issued from the first processor, and that controls activation of the first processor including resetting the first processor by the second processor. Weber does not disclose this feature.

To support the assertion that Weber teaches this feature, the Examiner cites paragraphs [0025], [0029] and [0033]. However, neither the cited text, nor any other portion of Weber teaches or suggests the claimed features.

For example, Weber does not teach or suggest where a second processor accesses the storage devices in response to data of the block access form issued from the first processor. As described in paragraph [0029], lines 12-15, Weber merely discloses where the converting element 142 converts the data to block based protocol, and the data is subsequently transported to the storage element controller elements for storage in associated devices. Converting data to block based protocol is not the same as accessing the storage devices in response to data of the block access form issued from the first processor.

As described in paragraph [0033], lines 1-9, Weber merely describes a plurality of storage devices 130. There is no disclosure of where a second processor accesses the storage devices in response to data of the block access form issued from the first processor, as in the present invention. Therefore, Weber is quite different from the present invention.

Yet another feature of the present invention, as recited in claim 1, and as similarly recited in claim 15, includes a management terminal that is connected to the first processor and the second processor via an internal LAN. Weber does not disclose this feature.

As previously discussed, Weber does not disclose an external LAN. Furthermore, Applicants submit that Weber does not disclose an internal LAN to which a management terminal, the first processor and the second processor are connected. Accordingly, Weber is not the same as the present invention.

Therefore, Weber fails to teach or suggest "a first processor that is connected to an external local area network (LAN), which is external to said

storage device system, and that converts data of a file access form received over said external LAN into data of a block access form" as recited in claim 1, and as similarly recited in claim 15.

Furthermore, Weber fails to teach or suggest "a second processor that is connected to said storage device control section via said connection unit, that accesses said plurality of storage devices via said connection unit and said storage device control section in response to data of the block access form issued from said first processor, and that controls activation of said first processor including resetting said first processor by said second processor" as recited in claim 1, and as similarly recited in claim 15.

Further, Weber fails to teach or suggest "a management terminal that is connected to the first processor and the second processor via an internal LAN" as recited in claim 1, and as similarly recited in claim 15.

The above noted deficiencies of Weber are not supplied by any of the other references of record, namely Fukui, whether taken individually or in combination with each other. Therefore, combining the teachings of Weber and Fukui in the manner suggested by the Examiner still fails to teach or suggest the features of the present invention as now more clearly recited in the claims.

Fukui teaches a remote power management system of an information processing apparatus or the like. However, there is no teaching or suggestion in Fukui of the storage device system or the method of activating a storage device system as recited in claims 1 and 15 of the present invention.

Fukui's remote power management system addresses problems regarding the occurrence of uncontrollability of power supply due to

malfunction of an uninterruptible power supply device that is incapable of trying restart and recovery of information processing apparatus of the certain type merely through start or termination of power supply or alternatively as to unwanted interruption of power supply to information processing apparatus constituting a network. The system includes a remote power switch for change over between turn-on and turn-off of a power supply line, information processing apparatus or network equipment for receiving electrical power from the power supply line via the power switch, and a remote control device for controlling changeover of the remote power switch from a remote location wherein these are connected together over a network. The remote control device is operable based on a specific command from the remote location for outputting a control signal for turn-on or turn-off of power supply via the network to the remote power switch. The information processing apparatus has interface means for letting the information processing apparatus get restarted in response to the turn-on control signal as output from the remote control device.

One feature of the present invention, as recited in claim 1, and as similarly recited in claim 15, includes a first processor that is connected to an external local area network (LAN), which is external to the storage device system, and that converts data of a file access form received over the external LAN into data of a block access form. Fukui does not disclose this feature, and the Examiner does not rely upon Fukui for teaching this feature.

Another feature of the present invention, as recited in claim 1, and as similarly recited in claim 15, includes a second processor that is connected to the storage device control section via the connection unit, that accesses the

plurality of storage devices via the connection unit and the storage device control section in response to data of the block access form issued from the first processor, and that controls activation of the first processor including resetting the first processor by the second processor. Fukui does not disclose this feature.

The Examiner relies upon Fukui for teaching where the second processor controls activation of the first processor. As previously discussed, Weber fails to teach or suggest where the second processor accesses the plurality of storage devices via the connection unit and the storage device control section in response to data of the block access form issued from the first processor. Applicants submit that Fukui also suffers from this same deficiency. Accordingly, Fukui does not teach or suggest the claimed combination of features.

Yet another feature of the present invention, as recited in claim 1, and as similarly recited in claim 15, includes a management terminal that is connected to the first processor and the second processor via an internal LAN. Fukui does not disclose this feature. More specifically, Fukui does not disclose both an external LAN (previously discussed) and an internal LAN, in the manner claimed.

Therefore, Fukui fails to teach or suggest “a first processor that is connected to an external local area network (LAN), which is external to said storage device system, and that converts data of a file access form received over said external LAN into data of a block access form” as recited in claim 1, and as similarly recited in claim 15.

Furthermore, Fukui fails to teach or suggest “a second processor that is connected to said storage device control section via said connection unit, that accesses said plurality of storage devices via said connection unit and said storage device control section in response to data of the block access form issued from said first processor, and that controls activation of said first processor including resetting said first processor by said second processor” as recited in claim 1, and as similarly recited in claim 15.

Further, Fukui fails to teach or suggest “a management terminal that is connected to the first processor and the second processor via an internal LAN” as recited in claim 1, and as similarly recited in claim 15.

In addition to the above described features, Applicants have amended claims 1 and 15 to more clearly describe features of the present invention. More specifically, Applicants have amended claims 1 and 15 to include features as shown in Fig. 17 (steps 6, 10, 12, 13, 18, and 28). These features are not taught or suggested by either Weber or Fukui, either alone or in combination.

For example, both Weber and Fukui fail to teach or suggest “wherein the first processor stores respective media access control (MAC) addresses, which are assigned to ports of the internal LAN, in respective communication memories,

wherein the management terminal acquires the MAC addresses assigned to the first processor from the second processor at regular intervals, until the power supply of the management terminal is turned on again,

wherein the second processor verifies whether disk drives have spun disks so as to determine whether the storage devices are usable, and detects whether the disk drives have completed spinning the disks,

wherein the first processor issues a network boot request to a network boot server implemented in the management terminal,

wherein the management terminal receives the network boot request over the internal LAN, and

wherein the first processor allows the second processor to start disk booting” as recited in claim 1, and as similarly recited in claim 15.

Both Weber and Fukui suffer from the same deficiencies, relative to the features of the present invention, as recited in the claims. Therefore, combining the teachings of Weber and Fukui in the manner suggested by the Examiner does not render obvious the features of the present invention as now more clearly recited in the claims. Accordingly, reconsideration and withdrawal of the 35 U.S.C. §103(a) rejection of claims 1-19 as being unpatentable over Weber in view of Fukui are respectfully requested.


The remaining references of record have been studied. Applicants submit that they do not supply any of the deficiencies noted above with respect to the references used in the rejection of claims 1-19.

In view of the foregoing amendments and remarks, applicants submit that claims 1-19 are in condition for allowance. Accordingly, early allowance of claims 1-19 is respectfully requested.

To the extent necessary, the applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C., Deposit Account No. 50-1417 (TMI-5010).

Respectfully submitted,

MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C.



Donna K. Mason
Registration No. 45,962

DKM/cmd
(703) 684-1120